

INFORMATION SHEET

ORDER NO. R5-2005-XXX

NPDES NO. CA0079545

SOUTHERN CALIFORNIA EDISON COMPANY

BIG CREEK POWERHOUSE NO. 1, DOMESTIC WWTP

FRESNO COUNTY

BACKGROUND INFORMATION

Southern California Edison Company (Discharger) operates a series of hydroelectric plants along the upper San Joaquin River system. One of these facilities (Big Creek Powerhouse No. 1) has a company town (Big Creek) that is served by a company-owned and operated sewage collection and treatment and disposal system (WWTP or plant). This Order provides for the renewal of requirements for the WWTP.

The WWTP consists of primary, secondary, and tertiary units. The tertiary treatment process provides flocculation, filtration and ultraviolet (UV) light disinfection. The Discharger adds alum and soda ash to the secondary treatment units to remove phosphorous, enhance flocculation, and control pH. A concrete-lined overflow pond is adjacent to the WWTP for storage of flow in the event of a WWTP failure. The chlorination/dechlorination system was replaced with a UV light system. Sludge is digested anaerobically and further processed and disposed of by a contractor that transports it to the Wasco Wastewater Treatment Facility.

Treated effluent is discharged to Big Creek, a tributary (approximately 5 miles downstream) of the San Joaquin River. Although the Discharger does not have any minimum release requirements from Big Creek Dam No. 4 (immediately upstream from the point of discharge) it has indicated that leakage through the dam is four cubic feet per second. At design capacity, this results in a dilution ratio of creek water to wastewater of 112:1. Monthly monitoring reports indicate that the upstream average conductivity at 25° C (EC) and turbidity of Big Creek are low. The EC of the San Joaquin River below Millerton Lake is less than 100 µmhos/cm.

During the winter of 1994/1995, the Discharger had infiltration and inflow (I/I) problems that led to two unauthorized discharges of partially treated wastewater to Big Creek. The Discharger implemented, under its own accord, a program to replace the collection system for the town of Big Creek. The Discharger began the upgrade during the fall of 1994 and completed the final phase in 2001. The Discharger also located and terminated a cross connection with a French drain that contributed significant amounts of I/I during the wet winter of 1994/1995.

BENEFICIAL USES OF THE RECEIVING WATER

The designated beneficial uses of the San Joaquin River, Sources to Millerton Lake, including Big Creek are:

- municipal and domestic supply (MUN)
- agricultural supply (AGR)
- hydropower generation (POW)
- water contact recreation (REC-1)
- non-contact water recreation (REC-2)
- cold freshwater habitat (COLD)
- warm freshwater habitat (WARM)
- wildlife habitat (WILD)

The beneficial uses of the underlying groundwater, as identified in the Basin Plan, are MUN, industrial service supply, industrial process supply, and AGR.

REASONABLE POTENTIAL ANALYSIS FOR CTR CONSTITUENTS

The Regional Board conducted a reasonable potential analysis (RPA) on the CTR constituent monitoring data submitted by the Discharger. Based on the RPA methodology in the SIP, no constituents have been found to have reasonable potential to cause or contribute to an excursion above water quality objectives or water quality criteria in the receiving water. Therefore, no effluent limitations currently are required for CTR constituents in this Order.

The results of the RPA are summarized in the table below.

Summary of Reasonable Potential Analysis Results – CTR Constituents

CTR Parameter #	PRIORITY POLLUTANTS	Maximum Effluent Concentration or Minimum Method Detection Limit (ug/L)	Maximum Background Concentration or Minimum Detection Limit MDL (ug/L)	Lowest (most stringent) Criterion	RPA Result ^(1,2)
1	Antimony	2	2	6.00	No
2	Arsenic	2	12	50.00	No
3	Beryllium	1	1	4.00	No
4	Cadmium	1	1	0.05	No
5a	Chromium (III) (or total Cr)	0.2	0.2	33.95	No
5b	Chromium (VI)	1	1	11.43	No

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CTR Parameter #	PRIORITY POLLUTANTS	Maximum Effluent Concentration or Minimum Method Detection Limit (ug/L)	Maximum Background Concentration or Minimum Detection Limit MDL (ug/L)	Lowest (most stringent) Criterion	RPA Result ^(1,2)
6	Copper	5	5	1.41	No
7	Lead	5	5	0.19	No
8	Mercury	0.0002 2 Hits	0.0027	0.05	No
9	Nickel	10	10	8.06	No
10	Selenium	2	2	5.00	No
11	Silver	10	10	0.09	No
12	Thallium	1	1	1.70	No
13	Zinc	50	50	18.46	No
14	Cyanide	0.01	0.01	5.20	No
15	Asbestos	0.1	0.21	7000000.00	No
16	2,3,7,8-TCDD (Dioxin)	0.0000026	0.0000026	0.000000013	No
17	Acrolein	0	0	320.00	No
18	Acrylonitrile	0	0	0.06	No
19	Benzene	5	5	1.00	No
20	Bromoform	5	5	4.30	No
21	Carbon Tetrachloride	5	5	0.25	No
22	Chlorobenzene	5	5	680.00	No
23	Chlordibromomethane	5	5	0.41	No
24	Chloroethane	5	5	No Criteria	Uo
25	2-Chloroethylvinyl Ether	0	0	No Criteria	Uo
26	Chloroform	5	5	No Criteria	Uo
27	Dichlorobromomethane	5	5	0.56	No
28	1,1-Dichloroethane	5	5	5.00	No
29	1,2-Dichloroethane	5	5	0.38	No
30	1,1-Dichloroethylene	5	5	0.06	No
31	1,2-Dichloropropane	5	5	0.52	No
32	1,3-Dichloropropylene	5	5	10.00	No
33	Ethylbenzene	5	5	700.00	No
34	Methyl Bromide	5	5	48.00	No
35	Methyl Chloride	5	5	No Criteria	Uo
36	Methylene Chloride	25	25	4.70	No
37	1,1,2,2-Tetrachloroethane	5	5	0.17	No
38	Tetrachloroethylene	5	5	0.80	No
39	Toluene	5	5	150.00	No
40	1,2-Trans-Dichloroethylene	5	5	10.00	No
41	1,1,1-Trichloroethane	5	5	200.00	No
42	1,1,2-Trichloroethane	5	5	0.60	No
43	Trichloroethylene	5	5	2.70	No

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44	Vinyl Chloride	5	5	0.50	No
45	Chlorophenol	5	5	120.00	No
46	2,4-Dichlorophenol	5	5	93.00	No
47	2,4-Dimethylphenol	5	5	540.00	No
48	2-Methyl-4,6-Dinitrophenol	25	25	13.40	No
49	2,4-Dinitrophenol	50	50	70.00	No
50	2-Nitrophenol	5	5	No Criteria	Uo
51	4-Nitrophenol	25	25	No Criteria	Uo
52	3-Methyl-4-Chlorophenol	10	10	No Criteria	Uo
53	Pentachlorophenol	25	25	0.28	No
54	Phenol	10	10	21000.00	No
55	2,4,6-Trichlorophenol	5	5	2.10	No
56	Acenaphthene	5	5	1200.00	No
57	Acenaphthylene	5	5	No Criteria	Uo
58	Anthracene	5	5	9600.00	No
59	Benzidine	0	0	0.00	No
60	Benzo(a)Anthracene	5	5	0.00	No
61	Benzo(a)Pyrene	5	5	0.00	No
62	Benzo(b)Fluoranthene	5	5	0.00	No
63	Benzo(ghi)Perylene	5	5	No Criteria	Uo
64	Benzo(k)Fluoranthene	5	5	0.00	No
65	Bis(2-Chloroethoxy)Methane	5	5	No Criteria	Uo
66	Bis(2-Chloroethyl)Ether	25	25	0.03	No
67	Bis(2-Chloroisopropyl)Ether	50	50	1400.00	No
68	Bis(2-Ethylhexyl)Phthalate	5	5	1.80	No
69	4-Bromophenyl Phenyl Ether	5	5	No Criteria	Uo
70	Butylbenzyl Phthalate	5	5	3000.00	No
71	2-Chloronaphthalene	5	5	1700.00	No
72	4-Chlorophenyl Phenyl Ether	5	5	No Criteria	Uo
73	Chrysene	5	5	0.00	No
74	Dibenzo(a,h)Anthracene	5	5	0.00	No
75	1,2-Dichlorobenzene	5	5	600.00	No
76	1,3-Dichlorobenzene	5	5	400.00	No
77	1,4-Dichlorobenzene	5	5	5.00	No
78	3,3'-Dichlorobenzidine	10	10	0.04	No
79	Diethyl Phthalate	5	5	23000.00	No
80	Dimethyl Phthalate	5	5	313000.00	No
81	Di-n-Butyl Phthalate	5	5	2700.00	No

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82	2,4-Dinitrotoluene	20	20	0.11	No
83	2,6-Dinitrotoluene	20	20	No Criteria	Uo
84	Di-n-Octyl Phthalate	5	5	No Criteria	Uo
85	1,2-Diphenylhydrazine	0	0	0.04	No
86	Fluoranthene	5	5	300.00	No
87	Fluorene	5	5	1300.00	No
88	Hexachlorobenzene	5	5	0.00	No
89	Hexachlorobutadiene	5	5	0.44	No
90	Hexachlorocyclopentadiene	0	0	50.00	No
91	Hexachloroethane	5	5	1.90	No
92	Indeno(1,2,3-cd) Pyrene	5	5	0.00	No
93	Isophorone	5	5	8.40	No
94	naphthalene	5	5	No Criteria	Uo
95	Nitrobenzene	10	10	17.00	No
96	N-Nitrosodimethylamine	5	5	0.00	No
97	N-Nitrosodi-n-Propylamine	25	25	0.01	No
98	N-Nitrosodiphenylamine	5	5	5.00	No
99	Phenanthrene	10	10	No Criteria	Uo
100	Pyrene	5	5	960.00	No
101	1,2,4-Trichlorobenzene	5	5	70.00	No
102	Aldrin	5	5	0.00	No
103	alpha-BHC	0.1	0.1	0.00	No
104	beta-BHC	0.1	0.1	0.01	No
105	gamma-BHC	0.1	0.1	0.02	No
106	delta-BHC	0.1	0.1	No Criteria	Uo
107	Chlordane	2	2	0.00	No
108	4,4-DDT	0.1	0.1	0.00	No
109	4,4-DDE	0.1	0.1	0.00	No
110	4,4-DDD	0.1	0.1	0.00	No
111	Dieldrin	0.1	0.1	0.00	No
112	alpha-Endosulfan	0.1	0.1	0.06	No
113	beta-Endosulfan	0.1	0.1	0.06	No
114	Endosulfan Sulfate	0.1	0.1	110.00	No
115	Endrin	0.1	0.1	0.04	No
116	Endrin Aldehyde	0.1	0.1	0.76	No
117	Heptachlor	0.1	0.1	0.00	No
118	Heptachlor Epoxide	0.1	0.1	0.00	No
119-125	PCBs sum ⁽³⁾	0.2	0.2	0.00	No

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126	Toxaphene	2	2	0.00	No
1) RP =Yes, if either MEC or Background > WQO/WQC. RP = No, if (1) both MEC and background < WQO/WQC or (2) no background and all effluent data non-detect, or no background and MEC<WQO/WQC. 2) RP = Ud (undetermined due to lack of effluent monitoring data). RP = Uo (undetermined if no objective or criterion promulgated). 3) PCBs sum refers to sum of PCB 1016, 1221, 1232, 1242, 1248, 1254, and 1260					

EFFLUENT LIMITATIONS

The Regional Board has determined that the effluent limitations established under previous Order No. 95-236 continue to be appropriate, except as stated below.

Chlorine Residual. Previous Order No. 95-236 established chlorine residual effluent limitations to regulate the discharge of chlorine from wastewater disinfection processes. The Discharger has replaced the chlorine disinfection system with an ultraviolet light disinfection system, and no longer stores or uses chlorine at the WWTP. Because chlorine is no longer used at the WWTP, the previous Order's chlorine residual limitations are not included in this Order. This discontinuation of chlorine residual effluent limitations is allowed under an exception to federal Antibacksliding provisions, codified in 40 CFR 122.44(I), for facilities where material and substantial alterations or additions have been made which justify the relaxation.

Percent Removal of BOD and TSS. Previous Order No. 95-236 established 85% removal requirements for BOD and TSS. This Order requires that the WWTP meet 90% removal requirements for BOD and TSS. Ninety-percent removal requirements for BOD and TSS are technology based requirements for tertiary treatments systems based on best professional judgment (BPJ), and are consistent with requirements established for other tertiary treatment systems.

RECEIVING WATER LIMITATIONS

The plant discharges to Big Creek, a tributary to the San Joaquin River. The Regional Board adopted a *Water Quality Control Plan, Fourth Edition, for the Sacramento and San Joaquin River Basins* (hereafter Basin Plan). The Basin Plan establishes water quality objectives that apply to all surface waters in the Basin. This Order includes Receiving Water Limitations for: bacteria, biostimulatory substances, chemical constituents (lead, arsenic, barium, copper, cyanide, iron, manganese, silver and zinc),

color, floating material, oil and grease, pH, pesticides, radioactivity, sediment, settleable material, suspended material, tastes and odors, temperature, toxicity, turbidity, chloride, conductivity, and dissolved oxygen based on the applicable narrative and numeric water quality objectives contained in Basin Plan.

MONITORING AND REPORTING REQUIREMENTS

In 1998 the Regional Board revised the Monitoring and Reporting Program (MRP) for Order No. 95-236 as follows:

- The requirement for reporting influent flow to the plant on a continuous basis was removed because the flow has been demonstrated to be consistent, and the Discharger does not have a continuous influent flow recording meter.
- The effluent monitoring requirement to measure chlorine residual three times per week was revised to require monitoring only when the Discharger is using chlorine. The receiving water monitoring requirement to measure chlorine residual was revised to apply only when the system is chlorinating.
- The effluent monitoring requirement to measure settleable solids daily was revised to require weekly monitoring. The Discharger demonstrated that effluent settleable solids values were nearly always non-detect.
- The effluent monitoring requirement to measure pH daily was revised to three times per week based on demonstrated consistency in pH testing results.
- The acute toxicity testing requirement was removed because the Discharger was able to demonstrate no toxicity in the discharge. The Discharger submitted data from four successive quarters.
- The receiving water monitoring requirements for flow and flow ratio reporting were removed based on data that showed that the receiving water flow will not change significantly in the future.
- The receiving water monitoring requirements to measure dissolved oxygen, pH, turbidity, temperature, electrical conductivity, and chlorine on a monthly basis were revised to quarterly. This revision was based on records that show that while the measured values of these constituents vary seasonally, the seasonal patterns are repeated each year.
- Toxicity testing requirements were removed from the previous revised MRP because the original MRP No. 95-236 stated "If acute toxicity monitoring results for four successive quarters demonstrate no toxicity in the discharge, the

Discharger may terminate acute toxicity monitoring.” The Discharger conducted toxicity monitoring as required and demonstrated that there is little potential for in-stream toxicity resulting from the discharge of effluent to Big Creek.

The above revised requirements have been maintained in this Order with the following exceptions:

- Weekly effluent monitoring for total phosphorous was reduced to twice per month. The previous Order stated that “When the Discharger demonstrates monthly average total phosphorous results 0.2 mg/L below the limit of 0.5 mg/L for six consecutive months, then the frequency of monitoring for total phosphorous can be reduced to two times per month.” Data from 2001, 2002, and 2003 showed that all samples for phosphorous were 0 or ND except one monthly average which was 2.5 mg/L in March 2002. Therefore, the sampling frequency for phosphorous has been reduced.
- Total coliform and ammonia receiving water monitoring requirements are established in this Order to determine whether the discharge is causing or contributing to an in-stream exceedance of applicable water quality objectives.
- Effluent and receiving water monitoring requirements for chlorine residual are not included in the MRP because the WWTP no longer stores or uses chlorine onsite.
- Effluent chronic toxicity testing requirements are included in this Order to comply with Section 4 of the SIP. The Discharger will be required to monitor the effluent for chronic toxicity once during the term of this Permit.
- Priority pollutant monitoring requirements are included in this Order to comply with Section 1.3 of the SIP. The Discharger will be required to monitor the effluent for priority pollutants once during the term of this Permit.